controlling an effective radiated power (ERP) of the first RF signal transmitted by the repeater, based on the detected correlation.

2. A method as claimed in claim 1, wherein the step of generating the signature signal comprises steps of:

A1 Cont.

generating a code signal; and

shaping the code signal.

3. A method as claimed in claim 2, wherein the step of generating the code signal comprises a step of generating a predetermined sequence of bits.

4. A method as claimed in claim 3, wherein the predetermined sequence of bits is spectrally white.

5. A method as claimed in claim 3, wherein the predetermined sequence of bits is pre-selected from among a set of orthogonal bit sequences.

A2

7. A method as claimed in claim 1, wherein the step of inserting the signature signal into the first RF signal comprises a step of modulating a parameter of the first RF signal.

10. A method as claimed in claim 1, wherein the step of detecting a correlation between the signature signal and the second RF signal comprises steps of:

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monitoring the second RF signal to detect at least a signal component consistent with the signature signal;

comparing the detected signal component to the signature signal, and generating a correlation signal indicative of a degree of similarity between the detected signal component and the signature signal.

15. A method as claimed in claim 1, wherein the step of controlling an effective radiated power (ERP) of the first RF signal comprises steps of:

A4 Cont

comparing the detected correlation to a predetermined threshold value; and

determining an optimum value of a gain of the repeater using the comparison result.

16. A system for controlling a stability of an on-frequency repeater of a wireless communications network, the system comprising:

a signal generator adapted to generate a signature signal associated with the repeater;

a first modulator adapted to insert the signature signal into a first RF signal transmitted by the repeater;

a detector adapted to detect a correlation between the signature signal and a second RF signal received by the repeater; and

a controller adapted to control an effective radiated power (ERP) of the first RF signal transmitted by the repeater, based on the detected correlation.

A4 concl.

17. A system as claimed in claim 16, wherein the signal generator comprises:

a code generator adapted to generate a code signal; and

a signal shaper adapted to shape the code signal.

18. A system as claimed in claim 17, wherein the code signal comprises a predetermined sequence of bits.

19. A system as claimed in claim 18, wherein the predetermined sequence of bits is spectrally white.

20. A system as claimed in claim 18, wherein the predetermined sequence of bits is pre-selected from among a set of orthogonal bit sequences.

21. A system as claimed in claim 17, wherein the signal shaper comprises a second modulator adapted to modulate the code signal with a predetermined fade signal.

A5

24. A system as claimed in claim 22, wherein the first modulator is adapted to simultaneously modulate the parameter of all RF signals within a predetermined wide-band signal path.

29. A system as claimed in claim 26, wherein the first comparator comprises a third signal processor adapted to calculate a cross-correlation of the detected signal component and the signature signal.

30. A system as claimed in claim 16, wherein the controller is adapted to operate under control of software code to:

compare the detected correlation to a predetermined threshold value; and

determine an optimum value of a gain of the repeater using the comparison result.

31. A method of controlling spatial nulls within an area of overlapping coverage served by at least two transmitters, the method comprising a step of:

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generating a signature signal associated with a selected one of the transmitters, the signature signal being unique among at least the transmitters serving the area of overlapping coverage; and

modulating a respective RF signal transmitted by the selected transmitter, using the signature signal;

whereby modulation of the RF signal causes a corresponding movement of spatial nulls within the area of overlapping coverage.

32. A method as claimed in claim 31, wherein the step of generating the signature signal comprises a step of generating a code signal.

33. A method as claimed in claim 32, wherein the code signal comprises a sequence of bits.

38. A method as claimed in claim 36, wherein the step of controlling the parameter comprises a step of simultaneously controlling the parameter of all RF signal traffic within a predetermined wide-band signal path of the selected transmitter.

39. A system for controlling spatial nulls within an area of overlapping coverage served by at least two transmitters, the system comprising:

a signal generator adapted to generate a signature signal associated with a selected one of the transmitters, the signature signal being unique among at least the transmitters serving the area of overlapping coverage; and

a modulator adapted to modulate a respective RF signal transmitted by the selected transmitter, using the signature signal;

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whereby modulation of the RF signal causes a corresponding movement of spatial nulls within the area of overlapping coverage.

40. A system as claimed in claim 39, wherein the signature signal is derived from a code signal.

41. A system as claimed in claim 40, wherein the code signal comprises a sequence of bits.

46. A system as claimed in claim 44, wherein the modulator is adapted to simultaneously control the parameter of all RF signal traffic within a predetermined wide-band signal path of the selected transmitter.

Please add new claims 47-72 as follows:

47. A repeater adapted to control spatial nulls within an area of overlapping coverage served by the repeater and at least one other transmitter, the repeater comprising:

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Cont.

a signal generator adapted to generate a signature signal associated with the repeater, the signature signal being unique among the repeater and each other transmitter serving the area of overlapping coverage; and

a modulator adapted to modulate a respective signal transmitted by the repeater, using the signature signal;

whereby modulation of the signal causes a corresponding movement of spatial nulls within the area of overlapping coverage.

48. A repeater as claimed in claim 47, wherein the signature signal is derived from a code signal.

49. A repeater as claimed in claim 48, wherein the code signal comprises a sequence of bits.

A8 Cont.

50. A repeater as claimed in claim 49, wherein the sequence of bits is spectrally white.

51. A repeater as claimed in claim 49, wherein the sequence of bits is pre-selected from among a set of predetermined orthogonal bit sequences.

52. A repeater as claimed in claim 48, wherein the modulator is adapted to control a parameter of the signal in accordance with the signature signal.

53. A repeater as claimed in claim 52, wherein the parameter comprises either one or both of a power level and a signal phase.

54. A repeater as claimed in claim 52, wherein the modulator is adapted to simultaneously control the parameter of all signal traffic within a predetermined wide-band signal path of the selected transmitter.

55. A method as claimed in claim 1, wherein the signature signal associated with the repeater differs from the respective signature signal associated with at least one other repeater.

56. A system as claimed in claim 16, wherein the signature signal associated with the repeater differs from the respective signature signal associated with at least one other repeater.

57. An on-frequency repeater of a wireless communications network, the repeater comprising:

a signal generator adapted to generate a signature signal associated with the repeater;

a first modulator adapted to insert the signature signal into a first signal transmitted by the repeater;

a detector adapted to detect a correlation between the signature signal and a second signal received by the repeater; and

a controller adapted to control an effective radiated power (ERP) of the first signal transmitted by the repeater, based on the detected correlation.

A8 Cont.

58. An on-frequency repeater as claimed in claim 57, wherein the signature signal associated with the repeater differs from the respective signature signal associated with another repeater.

59. An on-frequency repeater as claimed in claim 57, wherein the signal generator comprises:

a code generator adapted to generate a code signal; and

a signal shaper adapted to shape the code signal.

60. An on-frequency repeater as claimed in claim 59, wherein the code signal comprises a predetermined sequence of bits.

61. An on-frequency repeater as claimed in claim 60, wherein the predetermined sequence of bits is spectrally white.

62. An on-frequency repeater as claimed in claim 60, wherein the predetermined sequence of bits is pre-selected from among a set of orthogonal bit sequences.

63. An on-frequency repeater as claimed in claim 59, wherein the signal shaper comprises a second modulator adapted to modulate the code signal with a predetermined fade signal.

64. An on-frequency repeater as claimed in claim 57, wherein the first modulator is adapted to modulate a parameter of the first RF signal.

65. An on-frequency repeater as claimed in claim 64, wherein the parameter comprises one or more of: a power level and a phase.

66. An on-frequency repeater as claimed in claim 64, wherein the first modulator is adapted to simultaneously modulate the parameter of all signals within a predetermined wide-band signal path.

A8 Cont.

67. An on-frequency repeater as claimed in claim 57, wherein the detector comprises:

a monitor adapted to detect at least a signal component of the second signal that is consistent with the signature signal; and

a first comparator adapted to compare the detected signal component to the signature signal, and generate a correlation signal indicative of a degree of similarity between the detected signal component and the signature signal.

68. An on-frequency repeater as claimed in claim 67, wherein the monitor comprises:

a sampler for sampling the second signal;

a filter adapted to digitally filter the sample signal;

a second comparator for comparing the filtered signal to a predetermined threshold, and generate the signal component based on the comparison result.

69. An on-frequency repeater as claimed in claim 67, wherein the first comparator comprises:

a first signal processor adapted to logically compare respective successive bits of each of the detected signal component and the signature signal; and

a second signal processor adapted to average the comparison result.

70. An on-frequency repeater as claimed in claim 69, wherein the first signal processor comprises either one of an Exclusive OR logic gate, and an AND logic gate.

A8 Concl.

71. An on-frequency repeater as claimed in claim 69, wherein the first comparator comprises a third signal processor adapted to calculate a cross-correlation of the detected signal component and the signature signal.

72. An on-frequency repeater as claimed in claim 57, wherein the controller is adapted to operate under control of software code to:

compare the detected correlation to a predetermined threshold value; and

determine an optimum value of a gain of the repeater using the comparison result.

A complete set of claims, in which the specific claim amendments are clearly indicated, is attached hereto as Appendix A. In addition, a complete set of amended claims, incorporating each of the above-noted amendments, is attached hereto as Appendix B.

REMARKS

As a result of the foregoing amendments, a total of 72 claims remain in the present application. Original claims 1-5, 7, 10, 15-21, 24, 29-33, 38-41 and 46 have been amended. New claims 47-72 have been introduced. Original claims 4-6, 8, 9, 11-14, 22, 23, 25-28, 34-37 and 42-45 remain unchanged.

The foregoing amendments are presented solely in order to more clearly define the subject matter of the present invention, and to correct typographical errors identified in the originally filed claims. In preparing the amended claims, careful attention was paid to ensure that every claimed feature of the present invention is properly supported by the originally filed specification and drawings, and that no new subject matter has been introduced. Accordingly, entry and consideration of the amended claims is believed to be proper, and such action is courteously solicited.

If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. .

Respectfully submitted,

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